

REMARKS

In response to the Office Action dated August 27, 2007, Applicants respectfully request reconsideration based on the amendments herein and the following remarks. Applicants respectfully submit that the claims as presented herein are in condition for allowance.

Claims 1-12 and 14-23 are pending in the present application. Claims 1, 7, 14, 16-18 and 20 have been amended, while claims 8, 15 and 23 have been canceled. No new matter has been added by the amendments.

Applicants respectfully request reconsideration of claims 1-7, 9-12, 14 and 16-22 based upon the amendments and at least the following remarks.

Claim Rejections Under 35 U.S.C. §102

To anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988). Furthermore, the single source must disclose all of the claimed elements “***arranged as in the claim.***” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984) (Emphasis added).

Claim 14 stands rejected under 35 U.S.C. § 102(e) as being allegedly unpatentable over Hasegawa (U.S. Patent No. 7,173,602 B2, hereinafter “Hasegawa”). Applicants respectfully traverse for at least the following reasons.

It is respectfully noted that Hasegawa discloses an electrophoretic display comprising a substrate (column 6, lines 55-56) and a thin film transistor (column 9, line 9) including an insulating substrate (column 9, lines 9-14).

However, Hasegawa does not teach or suggest *a source electrode and a drain electrode formed on the substrate and a semiconductor layer formed on the source and the drain electrode* as in amended claim 14. More specifically, comparing the disclosure and FIG. 7 of Hasegawa with claim 14 and corresponding FIGS. 5 and 6 of the instant application, it can be seen that Hasegawa fails to teach or suggest all of the claimed elements of claim 14 arranged as in the claim. More specifically, referring to FIG. 7 of Hasegawa, a semiconductor layer (401) is

formed on an insulating substrate (501), while source and drain electrodes (electrode layer 403) are formed thereon, e.g., the source and drain electrodes are formed directly on the semiconductor layer (401) in Hasegawa. In contrast and in accordance with the present invention as disclosed in claim 14 and FIG. 6, both the source electrode (171) and the drain electrode (175) are formed directly on the substrate (110), and the semiconductor layer (150) is subsequently formed on both the source electrode (171) and the drain electrode (175).

Thus, it is respectfully submitted that claim 14, including claims depending therefrom, i.e., claims 16-19, define over Hasegawa. Note that claim 15 has been canceled.

In addition, Hasegawa does not teach or suggest *a gate line which extends in a first direction, a data line which extends in a second direction substantially perpendicular to the first direction, a first pixel electrode overlapping one of the gate line and the data line, and a second pixel electrode overlapping the one of the gate line and the data line, wherein the first pixel electrode and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance*, as in amended claim 14.

Thus, it is respectfully submitted that claim 14, including claims depending therefrom, i.e., claims 16-19, define over Hasegawa for this additional reason as well.

Accordingly, it is respectfully requested that the above rejection to claim 14 under 35 U.S.C. § 102 be withdrawn.

Claim Rejections Under 35 U.S.C. §103

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claims 1-2, 20-21 and 23 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Amundson (U.S. Patent No. 6,545,291 B1, hereinafter “Amundson”) in view

of Drzaic (U.S. Patent No. 7,030,412 B1, hereinafter “Drzaic ‘412”). Applicants respectfully traverse for at least the following reasons.

The Examiner states that Amundson teaches all elements of claim 1 except *two pixel electrodes as a first pixel electrode and a second pixel electrode*, which the Examiner further states is disclosed primarily in FIG. 9 and column 2, lines 35-37, column 8, line 67 and column 9, lines 1 and 2 of Drzaic ‘412.

Applicants respectfully submit that Drzaic ‘412 neither teaches nor suggests *a first pixel electrode overlapping one of the gate line and the data line and a second pixel electrode overlapping the one of the gate line and the data line or wherein the first pixel electrode and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance*, as in amended independent claim 1. More specifically, it can be clearly seen in FIG. 9 of Drzaic ‘412, as pointed out by the Examiner, that a single pixel electrode (item 94) is disclosed. Thus, while the Examiner correctly states that this single pixel electrode 94 overlaps portions of two gate lines, i.e., item 53 and the corresponding unlabeled gate line to the right of item 53 as shown in FIG. 9, this is clearly in contrast to and in accordance with the present invention as disclosed in claim 1 and shown in FIGS. 3, 4, 5 and 7 of the instant application as filed, wherein two separate pixel electrodes, e.g., separated by a predetermined distance, both overlap a portion of the same gate line or the same data line.

More specifically, neither Amundson nor Drzaic ‘412, either alone or in combination, teach or suggest, a first pixel electrode overlapping one of the gate line [which extends in a first direction] and the data line [which extends in a second direction substantially perpendicular to the first direction]; and a second pixel electrode overlapping the one of the gate line and the data line, as recited in independent claim 1, and similarly recited in independent claim 20.

Thus, it is respectfully submitted that amended independent claim 1, including claims depending therefrom, i.e., claims 2-6, define over the cited references.

The Examiner states that Amundson teaches all elements of claim 20 except *a second pixel overlapping the one of gate line and the data line*, which the Examiner further states is disclosed primarily in FIG. 9 and column 2, lines 35-37, column 8, line 67 and column 9, lines 1 and 2 of Drzaic ‘412.

As described above with respect to claim 1, Applicants respectfully submit that Drzaic '412 neither teaches nor suggests a first pixel electrode overlapping one of the gate line and the data line and a second pixel electrode overlapping the one of the gate line and the data line or wherein the first pixel electrode and the second pixel electrode overlap a same gate line or data line are separated by a predetermined distance, as in amended independent claim 20. Again, it can be clearly seen in FIG. 9 of Drzaic '412, as pointed out by the Examiner, that a single pixel electrode (item 94) is disclosed. Therefore, although the Examiner correctly states that this single pixel electrode 94 overlaps portions of two gate lines, this is clearly in contrast to and in accordance with the present invention as disclosed in claim 1 and shown in FIGS. 3, 4, 5 and 7 of the instant application as filed, wherein two separate pixel electrodes both overlap a portion of the same gate line or the same data line.

More specifically, neither Amundson nor Drzaic '412, either alone or in combination, teach or suggest, a first pixel electrode overlapping one of the gate line [which extends in a first direction] and the data line [which extends in a second direction substantially perpendicular to the first direction]; and a second pixel electrode overlapping the one of the gate line and the data line, as recited in independent claim 20.

Thus, it is respectfully submitted that amended independent claim 20, including claims depending therefrom, i.e., claims 21 and 22, define over the cited references.

Accordingly, it is respectfully submitted that the rejection of claims 1-2 and 21-21 under 35 U.S.C. 103(a) be withdrawn. Applicants respectfully note that claim 23 has been canceled.

Claims 7 and 11 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Drzaic (U.S. Patent No. 6,518,949 B2, hereinafter "Drzaic '949") in view of Amundson. Applicants respectfully traverse for at least the following reasons.

The Examiner states that Drzaic '949 discloses all of the elements of the abovementioned claims except *a first pixel electrode overlapping one of the gate line and the data line and a second pixel electrode overlapping the one of the gate line and the data line*, which the Examiner further states is disclosed primarily in FIG. 5A and column 2, lines 55-58, column 12, lines 25-29 of Amundson.

Applicants respectfully submit that the deficiencies of Drzaic' 949 allegedly taught by Amundson are substantially the same deficiencies which the Examiner described above as lacking in Amundson (with respect to claims 1 and 20). More specifically, as the Examiner states, Drzaic '949 fails to teach or suggest *a first pixel electrode overlapping one of the gate line and the data line and a second pixel electrode overlapping the one of the gate line and the data line*, as can be seen in at least FIGS. 8-10, wherein only a single pixel electrode (item 124 in FIGS. 8-9 or item 134 of FIG. 10) overlaps a given data and/or gate line (allegedly analogous column electrode 138 or the unlabeled gate electrode of the transistor 130, respectively, in FIG. 10). Amundson, however, also fails to teach or suggest *a second pixel electrode overlapping the one of the gate line and the data line*, as the Examiner states on page 8 of the Office action. More specifically, FIGS. 3 and 5A of Amundson clearly disclose only a single pixel electrode 320 overlapping a portion of either the same data line (item 330) or the same gate (item 310).

Even more specifically, neither Drzaic '949 nor Amundson, either alone or in combination, teach or suggest, a first pixel electrode overlapping one of the gate line [which extends in a first direction] and the data line [which extends in a second direction substantially perpendicular to the first direction]; and a second pixel electrode overlapping the one of the gate line and the data line or wherein the first pixel electrode and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance, as recited in amended independent claim 7.

Therefore, it is respectfully submitted that amended independent claim 7, including claims depending therefrom, i.e., claims 9-12, define over the cited references. Note that claim 8 has been canceled.

Furthermore, referring to FIG. 3 of Amundson, the portion of the gate line 310 which the pixel electrode 320 overlaps is the source electrode S extending in a direction substantially parallel to the data line 330. Likewise, referring to FIG. 1c of Drzaic '949, the pixel electrode 18' overlaps an electrode (not labeled) extending from the gate line 17' in a direction substantially parallel to the data line 15'. In contrast and in accordance with claim 7 of the present invention, *the first pixel electrode overlapping one of the gate line and the data line and a second pixel electrode overlapping the one of the gate line and the data line, the gate line extends in a first direction and the data line extends in a second direction substantially perpendicular to the first direction*. Thus, the single pixel electrode of either Drzaic '949 or

Amundson, respectively, overlaps a portion of the gate line extending in a substantially opposite direction to the allegedly analogous gate line of the present invention.

Therefore, it is respectfully submitted that amended independent claim 7, including claims depending therefrom, i.e., claims 9-12, define over the cited references for this additional reason, as well.

Accordingly, it is respectfully submitted that the rejection of claims 7 and 11 under 35 U.S.C. 103(a) be withdrawn.

Claims 3, 6 and 22 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Amundson in view of Drzaic '412 in further view of Yamamoto (U.S. Patent No. 6,545,291, hereinafter "Yamamoto"). Applicants respectfully traverse for at least the following reasons.

The Examiner states that Amundson in view of Drzaic '412 discloses all of the elements of the abovementioned claims except *the insulating layer having a dielectric constant lower than 4, with the insulating layer being made of a-Si:C:0 or a-Si:0:F*, which the Examiner further states is disclosed primarily in FIG. 3, column 13, lines 59-64 and column 13, lines 48-50 of Yamamoto.

Independent claims 1 and 20, from which claims 3, 6 and 22 depend, are submitted as being allowable for defining over Amundson in view of Drzaic '412 as discussed above. Furthermore, it is respectfully submitted that *the insulating layer having a dielectric constant lower than 4, with the insulating layer being made of a-Si:C:0 or a-Si:0:F* allegedly taught by Yamamoto or any other disclosure of Yamamoto do not cure the deficiency noted above with respect to Amundson in view of Drzaic '412.

Thus, Applicants respectfully submit that claim 3, 6 and 22 of the present invention are patentable over the cited references.

Accordingly, it is respectfully submitted that the rejection of claims 3, 6 and 22 under 35 U.S.C. 103(a) be withdrawn.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Amundson in view of Izumi et al. (U.S. Patent No. 7,148,867, hereinafter “Izumi”). Applicants respectfully traverse for at least the following reasons.

The Examiner states that Amundson discloses all of the elements of claim 4 except *the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti*, which the Examiner further states is disclosed primarily in FIG. 1B, column 8, lines 10-13 of Izumi.

Independent claim 1, from which claim 4 depends, is submitted as being allowable for defining over Amundson in view of Drzaic ‘412 as discussed above. Furthermore, it is respectfully submitted that *the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti* allegedly taught by Izumi or any other disclosure of Izumi do not cure the deficiency noted above with respect to Amundson in view of Drzaic ‘412.

Thus, Applicants respectfully submit that claim 4 of the present invention is patentable over the cited references.

Accordingly, it is respectfully submitted that the rejection of claim 4 under 35 U.S.C. 103(a) be withdrawn.

Claim 5 has been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Amundson in view of Drzaic ‘412. Applicants respectfully traverse for at least the following reasons.

The Examiner has stated that Amundson teaches all elements of claim 5 except *the first pixel electrode and the second pixel electrode are made of opaque material*, which the Examiner further states is disclosed primarily in FIG. 10, column 10, lines 61 and 62 of Drzaic ‘412.

Independent claim 1, from which claim 5 depends, is submitted as being allowable for defining over Amundson in view of Drzaic ‘412 as discussed above. Furthermore, it is respectfully submitted that *the first pixel electrode and the second pixel electrode are made of opaque* allegedly taught by Drzaic ‘412 or any other disclosure of Drzaic ‘412 do not cure the deficiency noted above with respect to Amundson in view of Drzaic ‘412.

Thus, Applicants respectfully submit that claim 5 of the present invention is patentable over the cited references.

Accordingly, it is respectfully submitted that the rejection of claim 5 under 35 U.S.C. 103(a) be withdrawn.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Drzaic '949 in view of Amundson and further in view of Hirota (U.S. Patent No. 7,098,980, hereinafter "Hirota"). Applicants respectfully note that claim 8 has been canceled, thereby rendering the rejection thereto moot.

Claims 9 and 12 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Drzaic '949 in view of Amundson and further in view of Yamamoto. Applicants respectfully traverse for at least the following reasons.

The Examiner states that Drzaic '949 in view of Amundson discloses all of the elements of the abovementioned claims except, *the insulating layer having a dielectric constant smaller than 4 with the insulating layer being made of a-Si:C:0 or a-Si:0:F*, which the Examiner further states is disclosed primarily in FIG. 3, column 13, lines 59-64 and column 13, lines 48-50 of Yamamoto.

Independent claim 7, from which claims 9 and 12 depend, is submitted as being allowable for defining over Drzaic '949 in view of Amundson as discussed above. Furthermore, it is respectfully submitted that *the insulating layer having a dielectric constant smaller than 4 with the insulating layer being made of a-Si:C:0 or a-Si:0:F* allegedly taught by Yamamoto or any other disclosure of Yamamoto do not cure the deficiency noted above with respect to Drzaic '949 in view of Amundson.

Thus, Applicants respectfully submit that claims 9 and 12 of the present invention are patentable over the cited references.

Accordingly, it is respectfully submitted that the rejection of claims 9 and 12 under 35 U.S.C. 103(a) be withdrawn.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Drzaic '949 in view of Amundson and further in view of Izumi. Applicants respectfully traverse for at least the following reasons.

The Examiner states that Drzaic '949 in view of Amundson discloses all of the elements of claim 10 except, *the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti*, which the Examiner further states is disclosed primarily in FIG. 1B, column 8, lines 10-13 of Izumi.

Independent claim 7 from which claim 10 depends, is submitted as being allowable for defining over Drzaic '949 in view of Amundson as discussed above. Furthermore, it is respectfully submitted that *the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti* allegedly taught by Izumi or any other disclosure of Izumi do not cure the deficiency noted above with respect to Drzaic '949 in view of Amundson.

Thus, Applicants respectfully submit that claim 10 of the present invention is patentable over the cited references.

Accordingly, it is respectfully submitted that the rejection of claim 10 under 35 U.S.C. 103(a) be withdrawn.

Claim 15 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hasegawa in view of Amundson. Applicants respectfully note that claim 15 has been canceled, thereby rendering the rejection thereof moot.

Claims 16 and 19 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hasegawa in view of Amundson and further in view of Yamamoto. Applicants respectfully traverse for at least the following reasons.

The Examiner states that Hasegawa in view of Amundson discloses all of the elements of claims 16 and 19 except, *the insulating layer has a dielectric constant smaller than 4*, which The Examiner further states is disclosed primarily in FIG. 3, column 9, lines 9-19 and column 13, lines 59-64 of Yamamoto.

Independent claim 14, from which claims 16 and 19 depend, is submitted as being allowable for defining over Hasegawa as discussed above. Furthermore, it is respectfully submitted that *the insulating layer has a dielectric constant smaller than 4* allegedly taught by Yamamoto or any other disclosure of Yamamoto do not cure the deficiency noted above with respect to Hasegawa.

Thus, Applicants respectfully submit that claims 16 and 19 of the present invention are patentable over the cited references.

Accordingly, it is respectfully submitted that the rejection of claims 16 and 19 under 35 U.S.C. 103(a) be withdrawn.

Claim 17 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hasegawa in view of Amundson and further in view of Izumi. Applicants respectfully traverse for at least the following reasons.

The Examiner states that Hasegawa in view of Amundson discloses all of the elements of claim 17 except, *the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti*, which the Examiner further states is disclosed primarily in FIG. 1B, column 8, lines 10-13 of Izumi.

Independent claim 14, from which claim 17 depends, is submitted as being allowable for defining over Hasegawa as discussed above. Furthermore, it is respectfully submitted that *the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti* allegedly taught by Izumi or any other disclosure of Izumi do not cure the deficiency noted above with respect to Hasegawa.

Thus, Applicants respectfully submit that claim 17 of the present invention is patentable over the cited references.

Accordingly, it is respectfully submitted that the rejection of claim 17 under 35 U.S.C. 103(a) be withdrawn.

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hasegawa in view of Amundson and further in view of Hirota. Applicants respectfully traverse for at least the following reasons.

The Examiner states that Hasegawa in view of Amundson discloses all of the elements of claim 18 except, *the inclination angle of the gate line or the data line relative to the surface of the substrate ranges between about 20 degrees to about 80 degrees*, which the Examiner further states is disclosed primarily in FIG. 5, column 5, lines 28-34 and 65-67 of Hirota.

Independent claim 14, from which claim 18 depends, is submitted as being allowable for defining over Hasegawa as discussed above. Furthermore, it is respectfully submitted that *the*

inclination angle of the gate line or the data line relative to the surface of the substrate ranges between about 20 degrees to about 80 degrees allegedly taught by Hirota or any other disclosure of Hirota do not cure the deficiency noted above with respect to Hasegawa in view of Amundson.

Thus, Applicants respectfully submit that claim 18 of the present invention is patentable over the cited references.

In addition, the “bending angle” disclosed in Hirota defines angles associated with a layout of scanning lines, pixel electrodes and common electrodes on a substrate, such that the scanning lines, pixel electrodes and common electrodes form a zigzag shape (see column 5, lines 27-31 and FIGS. 5 and 6). Thus, the bending angle in Hirota is completely non-analogous to the inclination angle of data and gate lines relative to a substrate as described in claim 18 of the present invention, and thereby neither Hirota, Hasegawa nor Amundson teach or suggest *the inclination angle of the gate line or the data line relative to the surface of the substrate ranges between about 20 degrees to about 80 degrees* as in claim 18.

Thus, Applicants respectfully submit that claim 18 of the present invention is patentable over the cited references for this additional reason as well.

Accordingly, it is respectfully submitted that the rejection of claim 18 under 35 U.S.C. 103(a) be withdrawn.

Conclusion

In view of the foregoing remarks distinguishing the prior art of record, Applicants submit that this application is in condition for allowance. Early notification to this effect is requested. The Examiner is invited to contact Applicants' Attorneys at the below-listed telephone number regarding this Amendment or otherwise regarding the present application in order to address any questions or remaining issues concerning the same. If there are any charges due in connection with this response, please charge them to Deposit Account 06-1130.

Respectfully submitted,

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